DOCUMENT RESUME

ED 031 162 HE 001 034

Phase II Objectives and Time Schedule of the WICHE Management Information Systems Program, June, 1969 - May, 1972.

Western Interstate Commission for Higher Education, Boulder, Colo.

Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.

Pub Date May 69

Note-15p.

EDRS Price MF-$0.25 HC-$0.85

Descriptors-Data Collection, *Financial Policy, *Information Systems, Institutional Administration, *Models, *Program Development, *Resource Allocations

Identifiers-*Western Interstate Commission for Higher Educatio

In 1968, the Western Interstate Commission for Higher Education (WICHE) initiated a 5-year management information systems project to encourage systematic data collection and utilization for the effective allocation of resources at institutions of higher education. This report describes Phase II of the project, a developmental phase scheduled for the period between June, 1969 and May, 1972, during which management information systems will be developed and tested at selected agencies and institutions of higher education. A primary objective is to develop models of instructional function, resource requirement prediction and student flow, and to develop glossaries of compatible data elements and procedures for producing and comparing cost data from several institutions. Other primary objectives involve the development of management information systems in cooperation with regional and national organizations, and the sharing of project results with agencies in states not participating in the program. The report also contains a project time schedule which outlines primary and supplementary program and management objectives. (WM)

ED031162

N-X

Phase II Objectives and Time Schedule of the WICHE Management Information Systems Program

June, 1969 - May, 1972

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

HE 001 034

Management Information Systems Program
Western Interstate Commission for Higher Education

PHASE II OBJECTIVES AND TIME SCHEDULE

PHASE II OBJECTIVES AND TIME SCHEDULE
OF THE
WICHE MANAGEMENT INFORMATION SYSTEMS PROGRAM

June, 1969 - May, 1972

The WICHE Management Information Systems Program is supported by the U.S. Office of Education, Bureau of Research, Division of Higher Education Research.

Western Interstate Commission for Higher Education
University East Campus Boulder, Colorado 80302

May, 1969

PHASE II OBJECTIVES, JUNE 1969 - MAY 1972
THE WICHE MANAGEMENT INFORMATION SYSTEMS PROGRAM

During Phase II of the program, the developmental phase, common sets of compatible data elements will be developed and agreed upon by participating agencies and institutions for use in the development and maintenance of their respective management information systems. These common data elements will be tested and used in the management information systems of the respective institutions.

Beginning with data required to derive cost of instructional programs by level of student and course and field of study, a limited number of information systems in selected institutions will be developed and tested. This initial effort will be expanded as rapidly as possible to concern itself with all types of management information and to include as many institutions as are capable and willing to participate. The program operation is more completely described in terms of the following objectives:

Primary Objective I

At the completion of Phase II, many institutions in the participating states will have developed and implemented information systems pertaining to the instructional function, including common sets of compatible data elements.

This objective requires that a number of difficult tasks be performed. Some will, of course, be done simultaneously, and others will be conducted in sequence, depending on existing developments pertaining to the task or the complexity involved in carrying out the task. The tasks are, to some degree, mutually dependent and, consequently, liaison in carrying out the various tasks is important.

Tasks

1.0 Develop analytical models relating to the instructional function. These analytical models will assist in understanding the instructional function. They should facilitate the development of acceptable and appropriate procedures for producing and comparing information as specified under Objective I.3.0. They will also provide useful guidelines in determining the data elements to be included in the common data bases. It is also true that the data elements that are available in the data bases will place constraints upon the analytical models and information exchange procedures to be developed.

1.1 Continue identification of common analytical problems (begun in Phase I) -- and propose an array of appropriate models for their solution.

1.2 Conceptualize models as identified by Phase I, Analytical Task Force or under Task Unit 1.1 above, such as:

1.21 a resource requirements prediction model -- a model that will assist in the prediction of resources required to provide instructional services for projected enrollments assuming given relationships for faculty, facilities, support staff, equipment, etc.

The inputs to this model would be numbers of students by level and discipline. The outputs would be:

a. personnel required;

b. physical facilities required;

c. operating budget in all the usual categories.

1.22 A student flow model -- this model should enable the analysis of the flow of students between high school and college, among colleges, and between college and various forms of employment. It should contribute to the understanding of factors affecting student attrition and persistence.

1.23 An analytical model of the general instructional function -- a model that will provide for the examination of a large array of alternative approaches to the provision of instructional services. It should predict the consequences of changes in the relationships between the various inputs (faculty, facilities, support staff, etc.) in the instructional process. It would be different than the resource requirements prediction model in that it could accept much larger changes in relationships between input factors.

1.3 Specify data elements required to operate models and refer to Task Unit 2.0.

1.4 Reduce models to computer processes.

1.5 Test models.

1.6 Develop preliminary manuals.

1.7 Field test models.

1.8 Modify models, revise manuals.

2.0 Develop glossaries of compatible data elements as identified under Task Unit 1.3 for the following general files:

2.1 Students.

2.2 Personnel -- faculty, support staff.

2.3 Physical facilities.

2.4 Major supporting equipment.

2.5 Finance.

2.6 Curricular components -- e.g., courses, degree programs.

3.0 Develop and put into operation in selected institutions procedures for producing and comparing comparable cost data from institutions of higher education. These comparisons should permit the understanding of the relationships between the information components that produce a given cost. Cost data to be exchanged shall include but not be limited to:

a. Cost by level of student.

b. Cost by level of course.

c. Cost by field of study.

d. Cost per unit of output -- e.g., certificate or degree winners or specified blocks of credit hours.

This task will require:

3.1 Determination of agreed upon definitions for commonly used derived data including but not limited to:

a. Full-time equivalent student.

b. Prescribed levels of students.

c. Prescribed levels of courses.

d. Full-time equivalent faculty member.

e. Student credit hour.

f. Student contact hour.

3.2 Determination of component cost data to be included in the comparative cost data.

3.3 Identification of significant relationships that affect the comparative cost data.

3.4 Description of the procedures to be used in producing the comparative cost data.

3.5 Description of the procedures to be used in identifying the variable relationships that may account for the differences in the respective costs when shared by the institutions.

4.0 Simultaneously with Task Unit 1.0, begin development of procedures or techniques for determination of relationship between costs and benefits of the instructional functions:

4.1 Identify factors determining quality of student on admission.

4.2 Identify factors determining quality of student on completion of program.

4.3 Relate difference between "a" and "b" to the inputs in the instructional function.

4.4 Identify factors affecting student attrition and persistence.

5.0 Ensure that the procedures, models and data elements developed in Task Units 1.0 through 4.0 are compatible with the other information requirements of the institutions and agencies.

6.0 Extend use of compatible data sets, the analytical models of the instructional function, and the exchange of comparable data to other institutions and agencies in the participating states as they become capable and willing to participate.

Primary Objective II

Begin expansion of common sets of compatible data elements to include the other two major higher education programs: research and external services.

Tasks

1.0 Develop analytical models of the research function:

1.1 Identify common analytical problems and propose an array of appropriate models for their solution.

1.2 Conceptualize models as identified by Task Unit 1.1.

1.3 Specify data elements required to operate models and refer to Task Unit 2.0.

2.0 Develop draft glossary of compatible data elements needed to describe the models as identified under Task Unit 1.3.

3.0 Develop analytical models of the external service functions.

3.1 Identify common analytical problems and propose an array of appropriate models for their solution.

3.2 Conceptualize models as identified by Task Unit 3.1.

3.3 Specify data elements required to operate models and refer to Task Unit 4.0.

4.0 Develop draft glossary of compatible data elements needed to describe models as identified under Task Unit 3.3.

Primary Objective III

In cooperation with local, regional and national organizations, encourage the appropriate and feasible development of management information systems. For the purposes of this project, it is useful to provide two categories of administrators and staff.[1]

Tasks

1.0 Develop training programs to prepare administrators and staff in the development, operation and use of MIS systems.

1.1 Determine training needs for users of management information systems at various levels within

---

[1] 1 -- Users -- Presidents and other administrative officers at various levels who are responsible for decision making.

2 -- Developers -- Two kinds of developers can be identified:

a. Those responsible for identification and analysis of management problems and for obtaining information necessary to their solution -- sometimes referred to as directors of analytical studies, directors of institutional research, administrative analysts or management analysts.

b. Those responsible for the development and operation of the processes by which information is collected, stored, retrieved, processed and reported.

institutions and agencies participating in the WICHE MIS Program.

1.2 Determine training needs for <u>developers</u> of management information systems at various levels within institutions and agencies participating in the WICHE MIS Program.

1.3 Determine methods of training or providing the training, such as:

1.31 Short term in-service type programs.

1.32 Self-instructional package.

1.33 Internship programs.

1.34 Graduate fellowship programs.

1.35 Degree program majors.

1.36 Other.

1.4 Determine logistics for implementation of training programs.

1.5 Implement programs.

1.6 Evaluate programs.

2.0 Develop appropriate didactic materials and seminars through which the latest developments may be communicated to developers and users.

3.0 Provide means whereby key developers may exchange information and stimulate each other's work.

4.0 Develop procedural guidelines for development of management information systems in institutions and agencies participating at Level II.

4.1 Determine criteria for identifying objectives.

4.2 Determine criteria for selection of collection, retrieval, processing and reporting techniques and systems.

4.3 Determine criteria for identifying staff, equipment and financial resources.

4.4 Determine criteria for selecting administrative control of the system.

5.0 Encourage adequate financial support for development of management information systems at all levels.

Primary Objective IV

Develop a specific plan for sharing the results of the WICHE Management Information Systems Program with institutions and agencies in states not participating in the program.

Tasks

1.0 Identify and define objectives.

2.0 Develop plan to fulfill objectives.

3.0 Determine logistics for implementation.

4.0 Prepare proposal to seek resources.

Supplementary Program Objectives

While the central purpose of the Management Information Systems Program will be accomplished through the primary program objectives, the project is expected to contribute to other activities in higher education. Among supplementary objectives that can be identified, the program will undertake to accomplish the following:

Supplementary Program Objective I

In cooperation with the National Center for Educational Statistics, develop and produce manuals that will assist institutions and state agencies in collecting, analyzing, and reporting information required by state and federal governments.

Tasks

1.0 Determine reporting requirements.

2.0 Analyze reporting requirements to determine:

- a. Areas to be covered by respective manuals.
- b. Data elements required.
- c. Analysis required.

3.0 Develop draft manuals in respective areas.

4.0 Field test manuals.

5.0 Modify manuals.

6.0 Produce manuals for general use.

Supplementary Program Objective II

In cooperation with other agencies, encourage the development of generalized software programs suitable for use by institutions and agencies of higher education in the operation of management information systems.

Tasks

1.0 Develop, in cooperation with other agencies, specifications for generalized software programs suitable for use by institutions and agencies of higher education in the operation of management information systems.

2.0 Identify means of getting generalized software programs written and available to institutions at reasonable cost.

3.0 Encourage exchange of software programs among institutions.

Management Objectives

During all parts of Phase II, undertake activities to maintain enthusiastic cooperation, to disseminate project results and coordinate with national developments.

Management Objective I

To encourage and maintain the enthusiastic cooperation of the participating institutions and agencies.

Tasks

1.0 Develop and maintain regular two-way communications on all aspects of the project with:

1.1 The steering committee and advisory panels and committees.

1.2 The institutions and agencies.

1.3 Key developers.

1.4 Key users of management systems.

2.0 Ensure that the program is in keeping with the needs of the participating institutions and agencies.

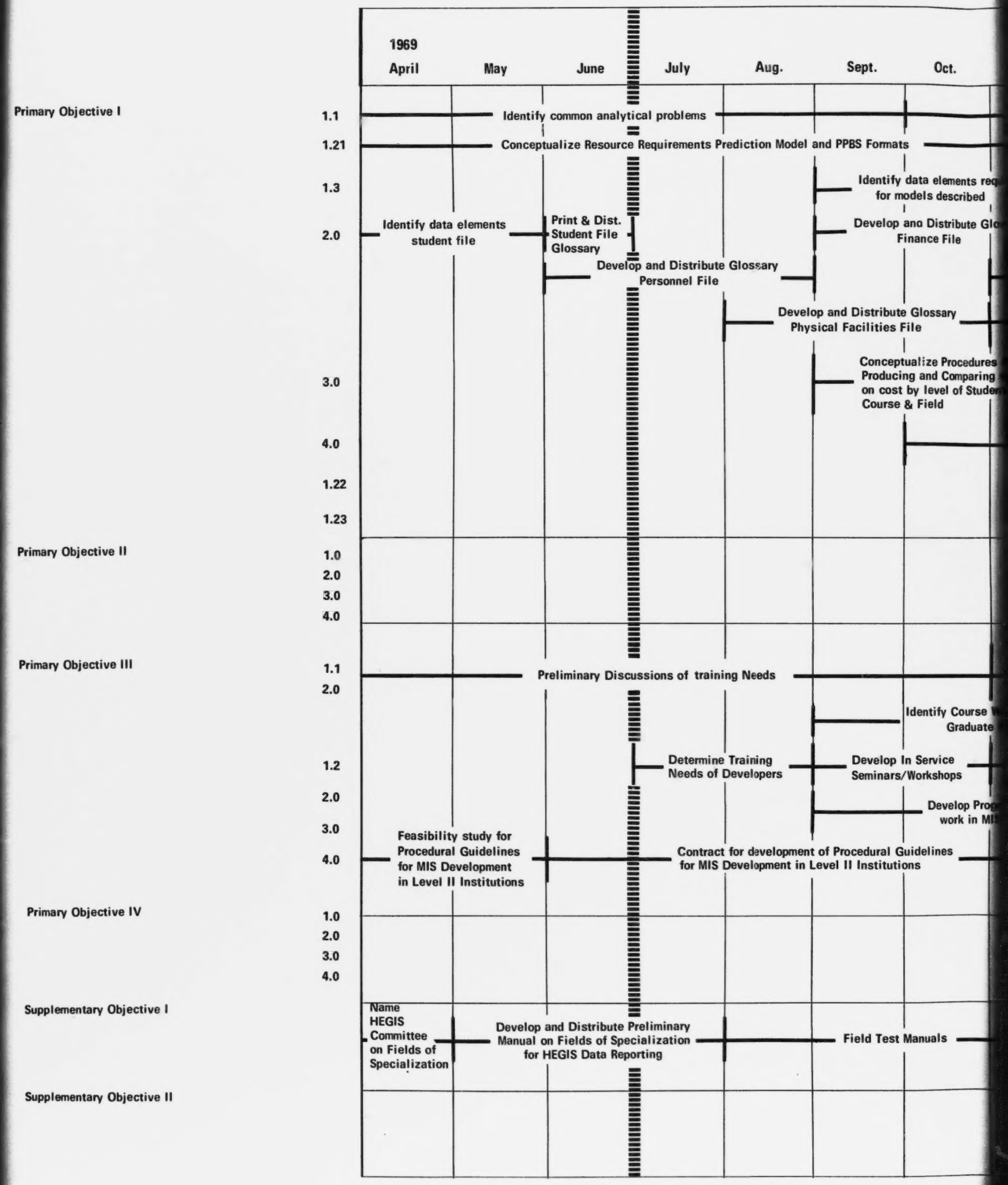
Management Objective II

To encourage and maintain two-way communications with management information developers and users at the national and international levels.

Tasks

1.0 Regular publication and distribution of progress and technical reports.

2.0 Consultation with appropriate national and international consultants.


1969
April
May
June
July
Aug.
Sept.
Oct.
Primary Objective I
1.1
Identify common analytical problems
1.21
Conceptualize Resource Requirements Prediction Model and PPBS Formats
1.3
Identify data elements req
for models described
2.0
Identify data elements
student file
Print & Dist.
Student File
Glossary
Develop and Distribute Glossary
Personnel File
Develop and Distribute Glossary
Physical Facilities File
Develop and Distribute Glo
Finance File
3.0
Conceptualize Procedures
Producing and Comparing
on cost by level of Studen
Course & Field
4.0
1.22
1.23
Primary Objective II
1.0
2.0
3.0
4.0
Primary Objective III
1.1
Preliminary Discussions of training Needs
2.0
Identify Course
Graduate
1.2
Determine Training
Needs of Developers
Develop In Service
Seminars/Workshops
2.0
Develop Prog
work in MI
3.0
4.0
Feasibility study for
Procedural Guidelines
for MIS Development
in Level II Institutions
Contract for development of Procedural Guidelines
for MIS Development in Level II Institutions
Primary Objective IV
1.0
2.0
3.0
4.0
Supplementary Objective I
Name
HEGIS
Committee
on Fields of
Specialization
Develop and Distribute Preliminary
Manual on Fields of Specialization
for HEGIS Data Reporting
Field Test Manuals
Supplementary Objective II

TIME

WICHE Management In

P

1970

Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | April | May | June | July | Aug.

Reduce Models to Computer Processes

Test Models

Develop and Distribu
Preliminary Manuals for M

a elements required
ls described

Distribute Glossary
nce File

Develop and Distribute Glossary
Major Equipment File

Develop and Distribute Glossary
Curricular Components

lossary

Revise Preliminary Glossaries – All Areas
Incorporate elements necessary for models described

lize Procedures for
and Comparing data
level of Student,
Field

Test Procedures

Develop and Distribute
Manuals on Procedures

Institutional
Gear Up

Begin emperical studies to identify "input" and "output" factors in Higher Education

Describe Factors

Conceptualize analytical model of
student flows

Reduce Model to Com

Conceptua
General

Begin Deve
Research P

Determine Training
Needs of Users

Develop In Service
Seminar/Workshops-Users

Conduct Seminar/Workshops for Users

dentify Course Work suitable for supplementing
Graduate Programs for Administrators

Encourage introduction of special course work in Programs for Administrators

Service
Workshops

Conduct Seminar/Work Shops for Developers

Develop Programs Suitable for Graduate
work in MIS development

Encourage development of such programs in Institutions in West

idelines
ns

Evaluate Progress

Complete & Distribute
Manuals

anuals

Revise Manuals

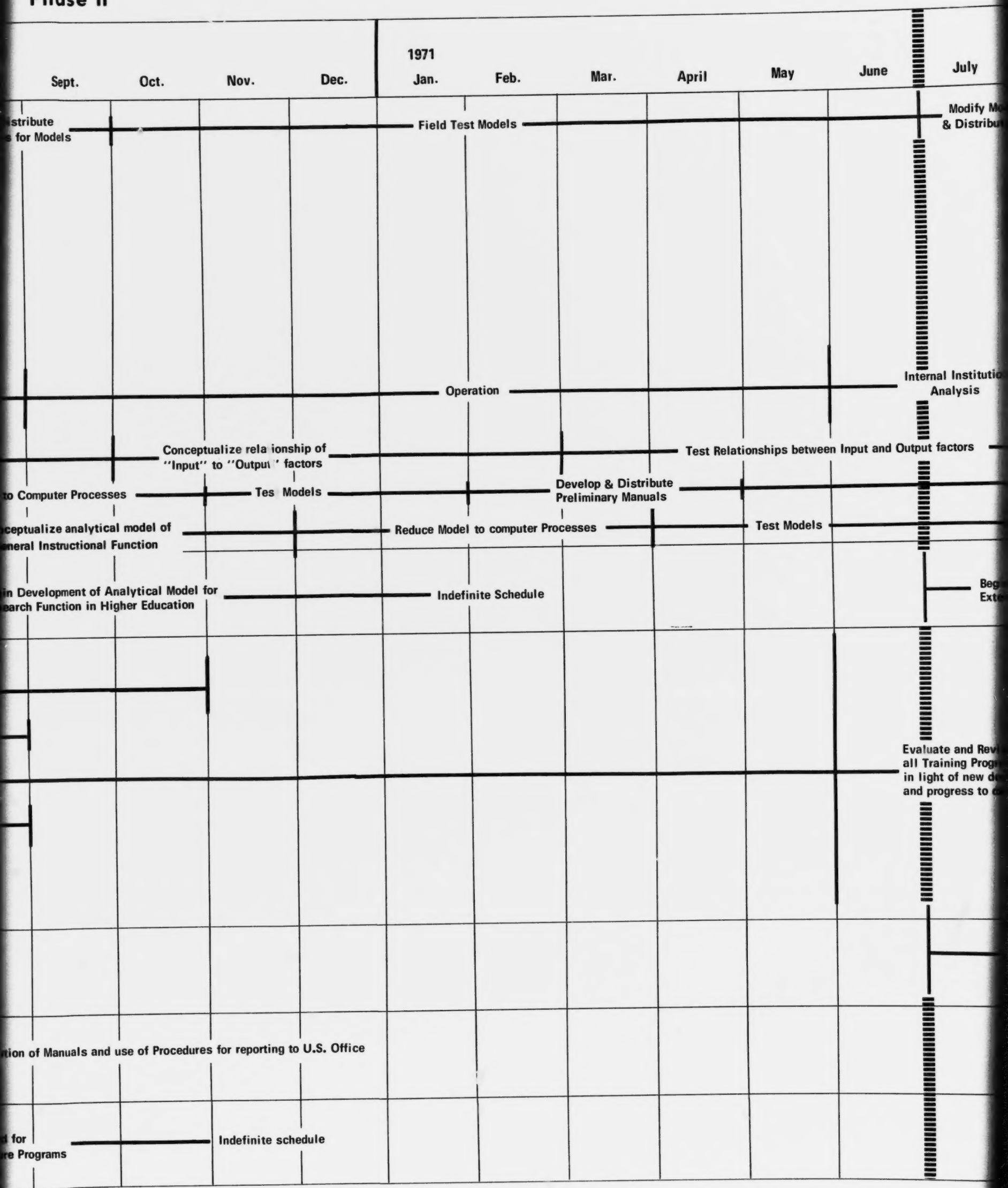
Distribution o

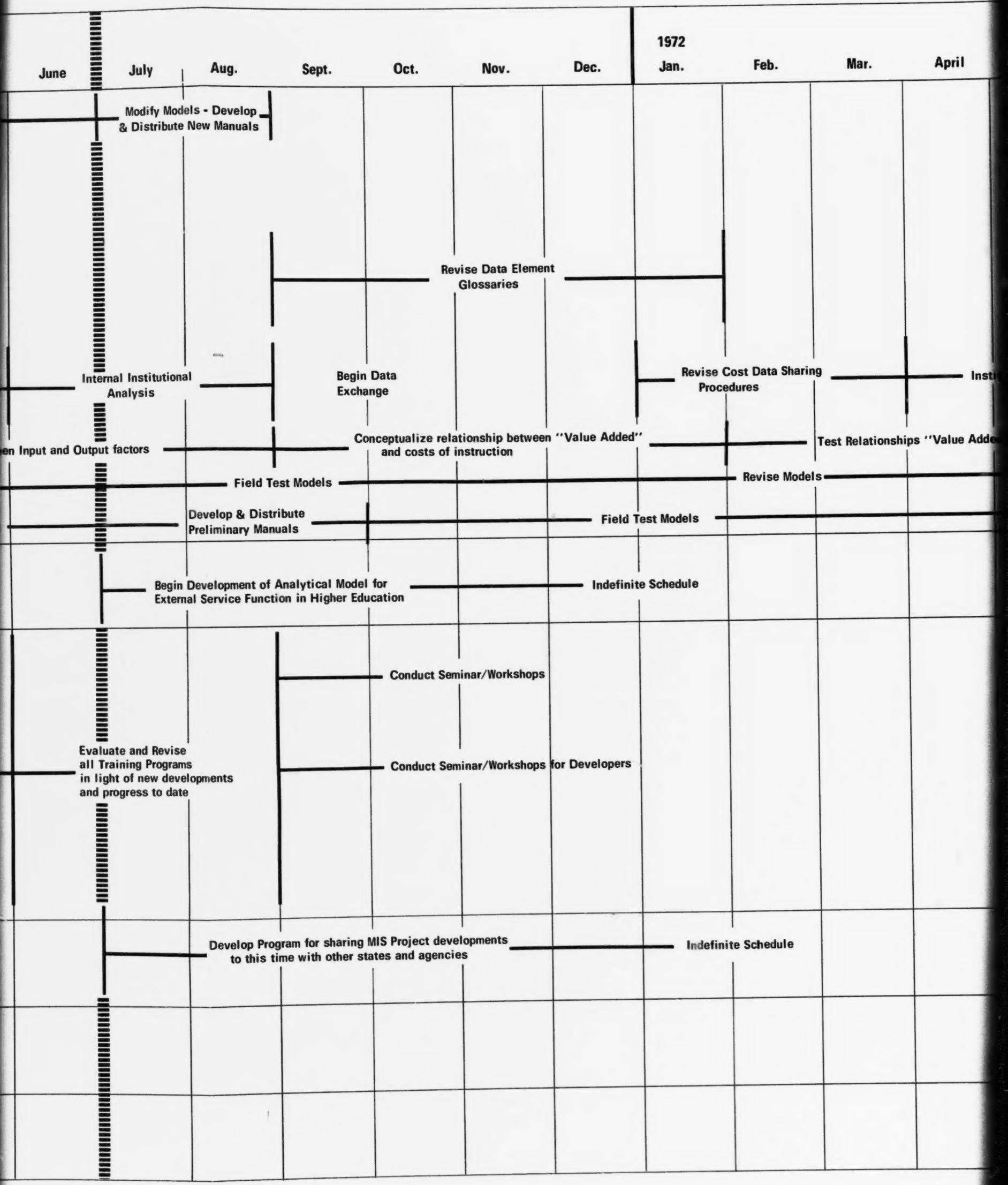
Begin Study of Need for
Generalized Software Pr

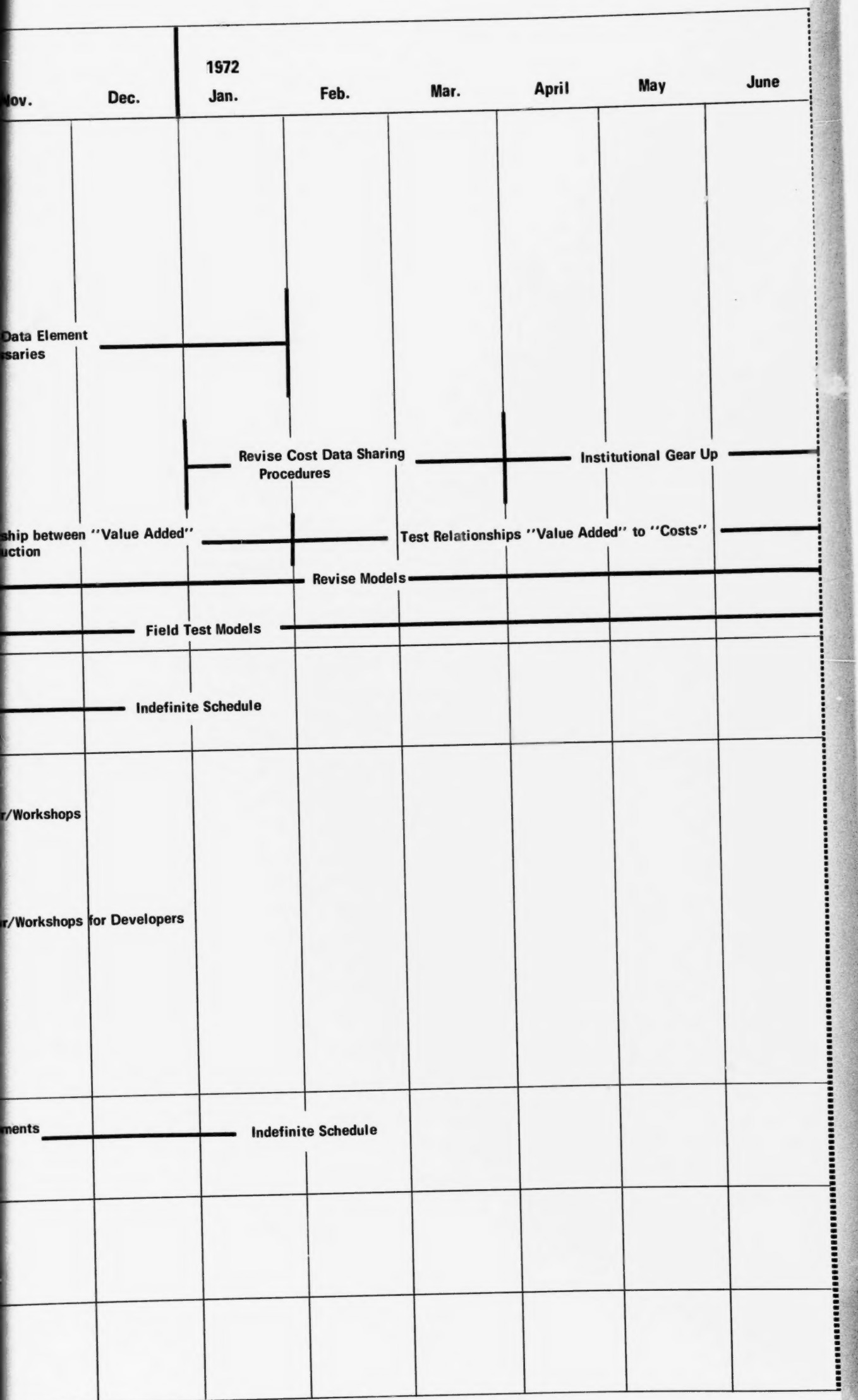
ME SCHEDULE

t Information Systems Program

Phase II




June
July
Aug.
Sept.
Oct.
Nov.
Dec.
1972
Jan.
Feb.
Mar.
April
Modify Models - Develop & Distribute New Manuals
Revise Data Element Glossaries
Internal Institutional Analysis
Begin Data Exchange
Revise Cost Data Sharing Procedures
Conceptualize relationship between "Value Added" and costs of instruction
Test Relationships "Value Adde
Field Test Models
Revise Models
Develop & Distribute Preliminary Manuals
Field Test Models
Begin Development of Analytical Model for External Service Function in Higher Education
Indefinite Schedule
Conduct Seminar/Workshops
Evaluate and Revise all Training Programs in light of new developments and progress to date
Conduct Seminar/Workshops for Developers
Develop Program for sharing MIS Project developments to this time with other states and agencies
Indefinite Schedule


Nov.
Dec.
1972
Jan.
Feb.
Mar.
April
May
June
Data Element
saries
Revise Cost Data Sharing
Procedures
Institutional Gear Up
ship between "Value Added"
uction
Test Relationships "Value Added" to "Costs"
Revise Models
Field Test Models
Indefinite Schedule
r/Workshops
r/Workshops for Developers
ments
Indefinite Schedule